

Course's Name :Microcontrollers
Course's Number :12120305

Palestine Technical University - Kadoorie

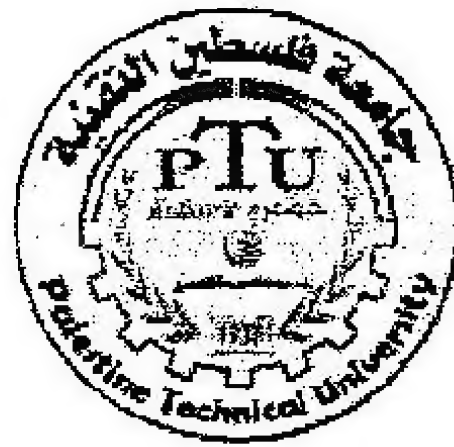
Instructor's Name :Basim Alsayid
Student's Name:

Exam's Period :50min

Questions' Number : 3

Total Mark :20

Pages' Number :1



second...Exam
...2...Semester 2012/2013

Student's Number:

Section's Number:

Exam's Date :4/6/2013

Form :

Q1) A switch is connected to pin RB0 . write a program to get the status of the switch and save it in D0 of file location 0x20. (6)

Q2) Write a program to clear the working register and to add 3 to it ten times. (use BNZ instruction). (6)

Q3) For the following program calculate the frequency of the square wave generated on pin RC3 if the fosc=10Mhz: (8)

```
BACK  BCF  TRISC.3
      BSF  PORTC.3
      CALL DELAY
      CALL DELAY
      BCF  PORTC.3
      CALL DELAY
      BRA  BACK
```

```
DELAY  MOVLW 0XFA
      MOVWF MYREG
AGAIN  NOP
      NOP
      NOP
      DECF MYREG,F
      BNZ  AGAIN
      RETURN
```

~~MOVLW PORTD~~
~~MOVWF MYREG~~

~~10~~
~~4~~

~~MOVLW PORTD~~

~~10~~

~~10~~
~~4~~

~~10~~

~~10~~

~~10~~

1 1 1 1 0 0 0
128 64 32 16 8 4 2 1

128 + 64 + 32 + 16 + 8 + 4 + 2 + 0

122
128
250

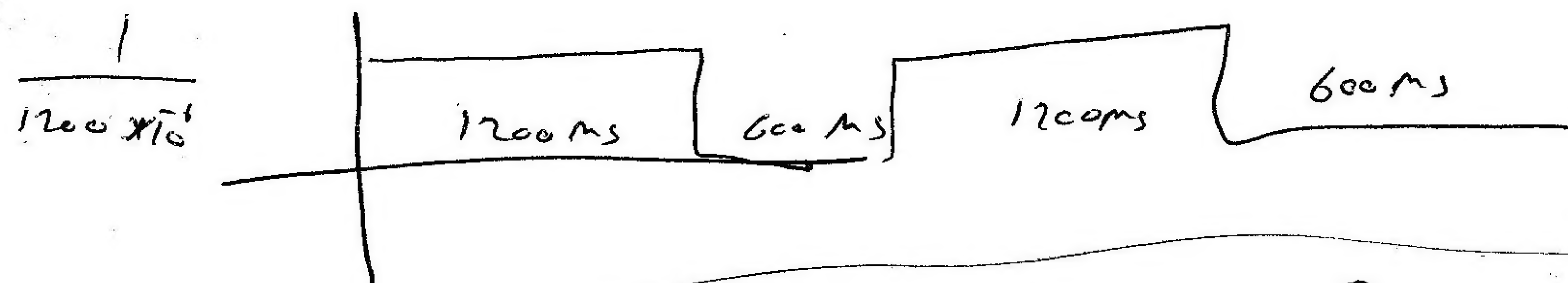
26
32
58
64
122

The END

$$((250 \times 8) + 2) \times 0.4 \times 10^{-6}$$

$$= 2((250 \times 8) + 3) \times 0.4 \text{ ms}$$

$$= 601.2 \text{ ms} \approx 600.2 \text{ ms} \approx 600 \text{ ms}$$



امتحان ثاني مرحلتان دقيقة + درجات
تم الرفع بواسطة محمد أبو عيسى

MW 9.30 - 11.00

Micro 2nd Exam

20/20

Dr. Basem
Al-Sayyed
4/6/2013

Name : Maen Qedan

منى سلام قعدان

Q1

~~MYREG EQU 0x20~~
~~BSF TRISB, 0~~
~~BSF TRISB, 0~~
~~CLRF TRISB~~
~~BTFS PortB, 0~~
~~BRA over~~

MYREG EQU 0x20

~~BSF TRISB, 0~~
~~BSF TRISB, 0~~ BSF TRISB, 0
~~SETB TRISB~~
~~CLRF TRISB~~

again BTFS PortB, 0

BRA over

BSF MYREG, 0

goto again

over BCF MYREG, 0

goto again

Q2

~~ORA OH~~
~~MOVWF R1~~
~~MOVWF R1~~
~~R1 EQU 0x25~~
~~MYCOUNT EQU d'10~~
~~MOVWF R1~~
~~MOVWF R1~~
~~Again ADDLW 3~~
~~DEC MYCOUNT, F~~
~~BNZ Again~~
~~END~~

ORA OH

R1 EQU 0x25

MYCOUNT EQU d'10

MOVLW MYCOUNT

MOVWF R1

MOVLW 0

LOP1 ADDLW 3

DEC F R1, F

BNZ LOP-1

END

Q3

DELAY MOV LW 0XFA 1
MOV WF MYREG 1

AGAIN NOP 1
NOP 1
NOP 1
DECF MYREG, F 1
BNZ AGAIN 2
RETURN 1

$$F = \frac{10}{4} = 2.5 \text{ MHz}$$

$$T = \frac{1}{2.5 \text{ MHz}} =$$

$$0.4 \mu\text{s}$$

8

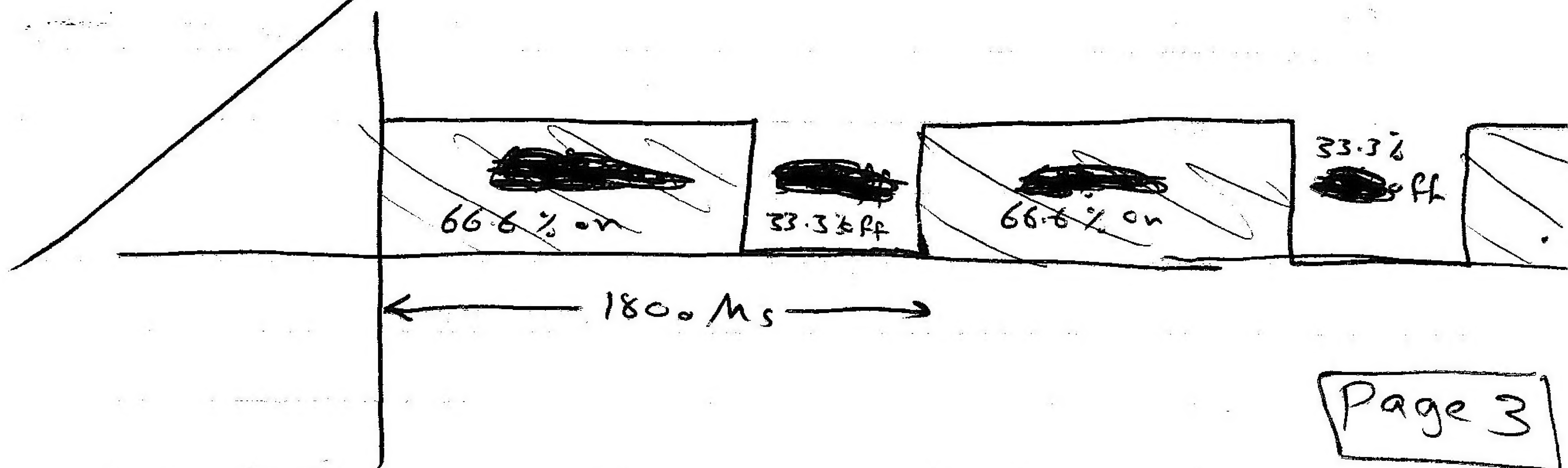
$$(0XFA)_{16} = (250)_{10}$$

$$[(250 \times 6) + 3] \times 0.4 \mu\text{s} = 601.2 \mu\text{s}$$

For one Loop, we decreament 1 μs

$$\therefore 601.2 - 1 = 600.2 \mu\text{s} \approx 600 \mu\text{s}$$

$$\therefore \text{DELAY} = 600 \mu\text{s}$$



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~~$$\therefore \text{Total DELAY} = 3 \times 600 \mu\text{s} = 1800 \mu\text{s}$$~~

$$\therefore \text{Total DELAY} = 3 \times 600 \mu\text{s} = 1800 \mu\text{s} \text{ for one cycle}$$

सकल देलाई

$$\therefore f \text{ of the square wave} = \frac{1}{1800 \mu s}$$

$$= \boxed{555.55 \text{ Hz}}$$

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ